

18.3: Data and Analysis

Data Collection (25 points)

Following your detailed protocol, perform all the experiments. Record your observations and take pictures of your key steps in the process. Your observations and images need to be incorporated in your data section and this section should be as detailed as possible as you will use this information to complete your discussion.

Data Processing (25 points)

1. What percent of the kernels did not pop (open at all)?
2. Assuming that minimal water is absorbed by the kernels, show the calculation for finding the volume of the kernels in milliliters and liters.
3. Assuming that minimal water is absorbed by the kernels, show the calculation for finding the mass of the kernels in grams.
4. Assuming that water vapor is the only gas released by popping popcorn, calculate the total mass of water released by popping.
5. Assuming that minimal water is absorbed by the kernels, calculate the percent water in your kernels.
6. Calculate the moles of water released in your popping experiment.
7. Assuming T to be the boiling point (smoke point) of the oil you are using, find T in Kelvin (around 400oF).
8. Using your measured kernel volume, calculated moles of water released and your temperature of boiling oil, calculate the expected pressure inside your kernels.
9. Fill in the following table using the data and observations from your experiment:

Assumptions made	Testing the assumption	If assumptions are wrong ...

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